Seattle Police Department

Proposed development of a Business Intelligence System

Executive Summary

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Version: FINAL

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1. Introduction

The United States and the City of Seattle have entered into a Settlement Agreement and Memorandum of Understanding with the Department of Justice with the goal of ensuring that police services are delivered to the people of Seattle in a manner that fully complies with the Constitution and laws of the United States, effectively ensures public and officer safety, and promotes public confidence in the Seattle Police Department and its officers. As part of the agreement, a Monitor was appointed by the federal court to assess compliance and report on the implementation of this agreement. A Monitoring Plan has been established which provides a schedule and a blueprint for compliance with the Settlement Agreement.

The Monitor has identified a number of deficiencies with the Seattle Police Department's (SPD) current business processes and systems that may hinder compliance with the Settlement Agreement. The agreement requires the Seattle Police Department to have a robust IT system that operationalizes core functions of the department, provides officer performance insights to managers which will allow them to actively supervise and monitor their officers, and to have a comprehensive reporting mechanism to evaluate and assess performance metrics and outcomes as an early intervention system. In order to comply with the requirements of the Settlement Agreement, the Monitor has asked SPD to develop a mature and comprehensive Solution that fulfills all these goals. This information will allow supervisors and officers to carry out their day-to-day operations, effectively manage their staff by identifying potential issues and problems that can then be corrected and prevented through training, supervision, coaching and mentoring, and provide needed training and mentoring to prevent potential problems. This system will also provide the department and the Monitor with greater visibility into SPD's performance data that will facilitate the assessment of compliance with the Agreements.

For the Seattle Police Department, information, communications and technology are pivotal areas in the transformation of Police operations. As SPD moves forward with improving accountability both internally and with the citizens of Seattle, the following have been identified as desired outcomes:

- Improved professionalism by building awareness and clarifying expectancies
- Provide uniform and consistent standards across the department
- Provide high quality training and the ability to assess its effectiveness
- Develop objective performance expectancies and strong mentoring dynamics with all levels of the organization.

As such, the Department seeks to ensure alignment of its business and IT systems, operations and processes with current and future needs of the solution desired by the Monitor to be in compliance and meet the goals outlined. To this end, SPD collaborated with an external consultant to review, assess, evaluate and make recommendations for a solution to meet its goals. The Project Team has carried out a Current State Assessment of SPD's existing IT systems, processes, technologies and operations to bring about the gaps and associated risks to determine readiness and maturity towards the desired Future State solution.

Note: The Current State assessment was carried out at a high level with the aim of highlighting major risks and gaps to deploy and support a solution. This should not be considered an IT audit as this was not in scope for this exercise.

2. Objective

The objective of this exercise was to examine, at a high level, the readiness for the Seattle Police Department to be able to implement and support a Business Intelligence solution that will a perform as a Performance Management System/Early Intervention System taking in to account current business and IT processes, tools, technology and people. In addition, the Project Team was tasked with the development of a Future State and Roadmap to achieve the desired outcome along with a high level cost estimate. The outputs of this assessment will highlight the gaps and risks found as well as those gaps that must be addressed prior to embarking on a system implementation.

3. Methodology

A Current State assessment was performed to examine SPD's readiness to deploy and support a Performance Management System/Early Intervention System as prescribed by the Settlement Agreement. This assessment examined at a high level the SPD's business processes, IT systems, people and capabilities as they relate to the end state Business Intelligence solution. Gaps and risks from this exercise were then documented in the Gaps Analysis document.

In the Future State Summary document, requirements were gathered from the Settlement Agreement, the Monitoring team, the SPD Compliance team, SPD IT and from business users within the Seattle Police Department. These requirements were consolidated and distilled in to functional and technical specifications for a BI solution, which were then summarized in to a solutions architecture template.

The Future State Recommendations and Roadmap document provides a summary of the proposed Performance Management/Early Intervention System followed by a roadmap to implement the gap remedies and develop the solution for the SPD.

Throughout this exercise, the Project Team gathered inputs from IT, various business teams supporting business processes as well as SPD Compliance.

4. Findings & Recommendations

Summary of Key Findings

Based on the analysis performed, a custom solution appears to be the most complete option available to SPD to best meet the requirements of a desired Performance Management/Early Intervention BI solution. While there are some commercially available options that meet some of the requirements, not all of the requirements can be met by such solutions.

The Current State assessment was performed to identify gaps that could pose possible barriers to the successful implementation of the BI solution. As a result of the Current State assessment, a number of key findings were identified. The key findings below are organized around Process, Technology and People:

Process: A number of process-related gaps were identified that impact SPD's overall readiness to implement a BI solution. These gaps can be categorized into the areas of 1) Data Quality, Availability and Reliability, 2) Data Management and Data Governance, 3) Quality, Reliability of Data Capture and Reporting and 4) IT Governance. Some of these gaps will be closed as a result of the implementation of a BI solution however, some of the gaps are more fundamental in nature and are considered to be foundational to the success of any IT organization and it is the recommendation of the Project Team that they must be addressed prior to any BI solution.

Data Quality, Availability and Reliability: Consistency and availability of data for the solution is a challenge, as some business processes are manual, paper-based processes, some systems have incomplete data or out of date data while other data may be scattered across multiple, disparate systems. As an example, it is difficult to get consistent data from Street Checks as most of the data in the system resides as a narrative and currently there is no way to differentiate Terry Stops from other stops and detentions. In addition, there is no department wide view of training data because it exists in multiple systems, both electronic and paper based. While eLearning has closed gaps on providing training to officers, it does not provide the capability to handle qualifications.

Inconsistencies have also been raised with HR data being out of sync and out of date between EV5, PEDS and Versonnel.

Processes around Data Management and Data Governance: There is a general lack of data management and data governance practices within the department. This results in compounding issues with system integration and creates inconsistencies across systems resulting in lack of data, inconsistent data, inaccurate data or the same data in different formats. No processes were noted to regularly validate data in business applications and IT systems to ensure quality, availability and reliability. Some of the gaps listed under data quality above would have been preventable had robust data management and data governance processes been in place.

Quality, Reliability of Data Capture and Reporting Processes: Key business processes including Use of Force, OPA complaints, collisions, pursuits and lawsuits are manual and paper-based and as such are difficult to pull data from, report on, track and audit. Reporting is typically a manual and limited process. Combining data from different systems by hand limits its usefulness due to the availability and consistency of data. In addition, the current EIS process is a mostly manual process that is labor and time intensive, does not provide any early intervention capabilities and has limited usefulness. Furthermore, there are no processes in place to check and validate data.

IT Governance Processes: While IT governance practices were noted, the Project Team feels the processes such as change control, asset management, project management, and controls around the development environment are not robust enough as most are manual in nature, residing on sets of spreadsheets, or carried out through email exchanges.

Technology: There is a general lack of technology encapsulating critical business processes and systems. As highlighted in the process findings, Use of Force, OPA complaints, officer involved collisions and pursuits as well as lawsuits have no electronic workflow and are paper-based, manual processes. As such, critical data essential for the BI solution is not readily available. While progress has been made on unifying applications under a common environment, there are still many systems for which there is little or no integration with key applications, resulting in application silos. There is also no unified reporting environment available; a number of reports are extracted from a variety of systems and then consolidated manually. Furthermore, there are a lack of systems in place to perform data checks to ensure reliability, availability and accuracy.

People: A significant gap exists around resourcing that must be addressed during the project. There are a number of roles missing from the IT organization that are needed to not only help in the implementation of the BI solution, but also support it moving forward. Although this may be mitigated though foundational gap closures, SPD currently has limited capacity to take on additional work without assistance. Some examples of key roles missing from the IT organization include Solutions Architects, Data Architects, Portfolio Managers and Business Analysts.

Recommendations and Roadmap for Moving Forward

A high-performance BI solution provides advanced analytics, workflows, reporting and collaborative capabilities. For such a system to function correctly, the key factor is having useful, timely, consistent and accurate data available. In addition, data must come from many disparate systems where similar data can be interrelated to establish dependencies. This data needs to be reliably integrated in to a central repository for the BI solution to provide advanced analytics.

To be able to achieve this, source systems must have consistent data management practices as well as data governance practices, meaning that data must be managed in a consistent fashion across the enterprise. Governance around data would include processes to keep data up to date, periodic validation and cleansing as well as controls to make sure processes are consistently followed, therefore data can stay more consistent and accurate. These processes and controls around data management and data governance are critical to the success of the BI solution and are therefore considered to be foundational processes.

To achieve the end state goal of an operational Performance Management/Early Intervention System, the Project Team recommends a two-stage solution:

Stage One: Engage an external vendor to focus on developing and implementing foundational processes around data management and governance as well as help SPD in validating and remediating existing data in systems that will be leveraged for the BI solution.

Stage Two: Once such foundational processes and governance controls have been put in place, work with an external vendor to design, development and implement, a BI solution can commence.

The Project Team believes that in order for SPD to have a higher probability of success with the implementation of a BI solution, these foundational gaps around how data is managed as well as governance processes must be addressed before the start of the implementation. Processes around proper end-to-end management of data as well as governance of the processes need to be developed and implemented immediately. If these are not done prior to the implementation of the BI solution, the risk of failure would be significantly higher. However, should these gaps be remediated, the Project Team does believe that SPD is capable of implementing, operating and supporting a BI solution.

It is important to note that establishment of the foundational processes will not close all of the gaps highlighted in this assessment. They should be viewed as pre-requisites that must be achieved prior to commencing the implementation of the BI solution. The foundational processes will provide the base for much of the design work around data and processes during the BI solution. The remaining gaps will be addressed through the implementation of the solution and its use. Such gaps include those related to key business processes currently based on manual, paper-based processes; these gaps will be closed as the solution will provide electronic workflows to replace the older manual processes.

Stage 1 - Addressing Foundational Gaps

The Project Team recommends engaging an external vendor or consultant to plan, design, and put in place foundational processes to address some of the high priority gaps and create the base on which the proposed BI solution will be built on such as:

- Develop and implement foundational processes to review and correct gaps in data in the source systems to the extent possible for consistency and cleanliness and certify current data to be imported once the proposed BI Solution is built. Data from source systems will be a significant part of the BI solution, thus accurate data is needed for a successful BI solution.

- Prior to the design phase, analyze and make recommendation on best of breed processes through which future data will be captured, validated, analyzed and staged prior to being populated in the data warehouse. While the interim solution, IApro will replace many of the manual processes, we expect SPD will need to re-engineer them to better fit their requirements for the Future State solution. This will ensure a straight through and consistent data capture as close as to the source as possible. The key manual, paper-based processes that will be replaced by the BI solution include:

    - Use of Force/officer involved shootings
    - Administrative investigations/OPA complaints
    - Terry Stops (Stops and Detentions)
    - Officer involved traffic pursuits and collisions
    - Lawsuits

- The assessment also uncovered some deficiencies in IT governance processes. Some examples are processes through which project and portfolio management is carried out. The foundational processes will recommend strengthening IT governance processes based on industry-wide IT best practices, such as the ITIL framework. Having strong and robust IT governance practices will influence the SPD's ability to implement a successful BI solution as well as sustain it over time. The capacity to build these processes does not currently exist in SPD, as they require specialized skillsets that are not currently within the organization.

Stage 2 - Building the proposed BI Solution

The proposed BI solution will be the core solution used by SPD for Early Intervention and Performance Management. This will provide the core capabilities of streamlined data capture, validation, analysis, extraction, transformation & loading (ETL), data warehousing, advanced analytics, reporting and workflows. Please refer to the Future State Summary document for details on the specifications and features of the Future State BI solution. The following recommendations should be implemented during the build of the proposed BI solution.

- As a part of the proposed solution, data from external sources will be normalized, cleansed and transformed prior to being placed in to the data warehouse in order to provide useful and accurate insights for data not collected by the suite of applications
- Decisions should be made by SPD on which legacy data exiting on paper forms will be brought in to the new system

This proposed solution will be a complex and advanced state of the art solution built on the latest technology standards and a modern BI Platform. As mentioned prior, SPD IT does not have the capacity to support the implementation of the proposed BI solution, from not only a capacity standpoint, but the organization is also missing essential roles needed during the entire lifecycle of the project. As such, the Project Team recommends that SPD leverage an external vendor or consultant to build the BI solution. It is estimated that this will be a 18-24 month effort once Stage 1 is complete.

5. Estimated Implementation Budget

The following is a consolidated table of the estimated budget for the BI solution:

Component	Cost
Stage 1	
Addressing Foundational Gaps[1]	**$768,000**
Data Consistency and Cleanup	
Creation of Data Management Processes	
Recommendation of IT Processes around ITIL Best Practices	
Recommendation of Project/Portfolio Management Processes	
Vendor and Platform Selection[2]	**$240,000**
Creation of RFPs with established specifications for Vendor and Platform Selection and creation of Evaluation Criteria	
Evaluation and shortlisting of Vendors	
Creation of POC Environment, Use Cases, POC Eval Criteria and Test Cases	
Assessment of POC, proposed Solution Blueprints and Roadmaps	
Final Assessment and selection of Vendor and Platform	
Stage 2	
Building the Performance Management/EIS Solution[3]	**$5,554,400**
Functional Specifications	
Design & Development	
Testing, Rollout and Training	
Hardware & Software Costs	***$2,909,600***
BI Solution Licenses	
ETL Tool Licenses	
Server OS & Server Hardware	

Component	Cost
Other Software	
Backfill Resources[4]	**$2,400,000**
10 resources for 2 years to help execute gap remediation as well as execute the project and support the solution going forward	
Includes business analysis, architects, support engineers and a project manager	
TOTAL COST TO REMEDIATE GAPS AND IMPLEMENT SOLUTION	**$11,872,000**

Comments:

1. The costs associated would be to bring in a consultant team comprising of Project Manager, Enterprise Architect, Data Architect, BI Architect and Business Analysts working for six months is estimated to be able to achieve the recommendation and establishment of foundational processes. There would be requirements for support of this effort from the SPD side; these costs are addressed under Backfill Resources.

2. It is recommended for the selection process to be based on well-established evaluation criteria along with Proof of Concepts to determine the best-suited vendor.

3. This is estimated for the building of the complete solution from Functional Specifications to Rollout. It is important to note that this is a high-level estimation for budgetary purposes and assumes a higher-end solution. The actual cost might vary based on the platform and vendor selection and selection of features, architecture choices.

4. Backfill Resources are needed as SPD currently lacks the capacity to implement this endeavor without additional assistance. The Backfill Resources will be leveraged to support the creation of the foundational processes and the knowledge transfer back to SPD, the build of the BI solution and the ongoing sustainment of the BI solution. The Backfill Resources are also required to help to address some of the other gaps that have been uncovered in IT governance and execution.

The below table summarizes estimated costs for maintaining the solution once implemented. These costs would begin after year 2.

Annual Support Cost	**$904,880**
ETL Tool Maintenance	
Server OS & Server Hardware Maintenance	
Other Software Maintenance	

NOTE: The above addresses vendor support for key components of the solution, such as the BI core components, the selected ETL tool, server operating systems maintenance as well as hardware maintenance. This cost does not include resourcing to support the daily operations of the solution. This would be addressed with the backfill resources.